MOVABLE KIDNEY; WITH A REPORT OF TWELVE CASES TREATED BY NEPHRORRHAPHY.[1]

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In the opinion of the writer there is scarcely a subject of more practical importance and interest to the gynecologist than that of movable kidney. This conviction has steadily grown upon him since his attention was first attracted to the subject, nearly four years ago, since which time he has had abundant opportunity to note both the frequency of its occurrence in women and the important interdependent relations between movable kidney and diseases of the female sexual organs.

Indeed, in view of the fact that the subject of movable kidney has been more or less fully treated of within the past dozen years by Hahn, Landau, Keppler, Pokrowsky, Lindner, von Fischer, Litten, Henderson, McCosh, Keen, Senator, Schmitt, and others, it is astonishing how little is known of it— or, at least, how little practical application is made of this knowledge by both general practitioner and gynecologist. The latter could have found in it a solution of many perplexing difficulties which beset him in daily practice. Why, for instance, a woman the lesions of whose genital tract have been successfully repaired by the gynecologist's art, and in whom no organic lesion can be discovered elsewhere, should after operation, in spite of the gynecologist pronouncing her well, persist in asserting the contrary and in clinging to most, if not all, of her former symptoms, would no longer be an enigma. The solution, in many instances, might be found in the vicinity of the renal regions. There, also, in not a few instances, can be found the explanation of symptoms usually interpreted as dependent upon disease of the female genital organs, when a most critical and painstaking examination of those organs fails to reveal the least evidence of disease. Instances illustrating both of the above assertions I have repeatedly encountered in my own practice, and a few of them will be found recorded in the histories of cases appended to the end of this article.

The main explanation, to my mind, of the existing general apathy and indifference to a subject of such great practical importance lies in the hitherto unsatisfactory therapeutics of the condition. A movable kidney is, in the vast majority of cases, one of the easiest things in the world to diagnosticate, provided only its possibility in a given case be borne in mind. But when it comes to treatment, bandages have proved inefficient; nephrectomy is a too radical and unjustifiable procedure; nephrorrhaphy has hitherto proven more or less disappointing, owing, as the writer believes, to imperfections of technique; massage has been too little tried, and meets with too general incredulity. It is one of the main purposes of this paper to furnish evidence that nephrorrhaphy, carefully performed after the method to be described later on, is capable in most, if not all, uncomplicated cases of movable kidney, of correcting the abnormality, and of relieving greatly or removing entirely the symptoms dependent thereon.

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FREQUENCY.—The frequency of the condition has been variously estimated by different writers, depending probably upon the greater or less fidelity with which each patient presenting is examined for the existence of the condition, as well as upon varying individual ability to recognize the minor degrees of the abnormality. While some authorities assert that movable kidney is of very rare occurrence, Lindner, for instance, states that he found it in one out of every five or six women examined. My experience has satisfied me that Lindner is very nearly, if not quite, right. I have taken the trouble to look over the histories of the last 500 women examined by me, and among them I find 90 recorded as possessing, amongst other things, a movable kidney. I am confident that a similar experience awaits every gynecologist who will make it a matter of routine to examine every woman consulting him for the existence or otherwise of the condition. I should, however, not like to be understood as asserting that every movable kidney produces symptoms. On the contrary, I am convinced from personal observation that such is not the case, and that many owners of movable kidneys experience no noticeable discomfort from the condition. Just here lies the difficulty: to determine exactly what symptoms, in a given case, are probably due to a movable kidney, inasmuch as the lesion is so frequently associated with disturbances in the genital sphere and many symptoms are common to the two conditions.

Further on I hope to show, however, that this differentiation may be made with reasonable accuracy in nearly all cases.

ETIOLOGY.—The etiology of movable kidney is still greatly a matter of speculation and theory, and it will probably require considerable added experience, and perhaps experiment, to satisfactorily elucidate this part of the subject. Bartels is inclined to regard lacing as a causative factor in both men and women. I am led from my own observations to believe that the very opposite is the case, and that tight lacing is the most effective external agent we can apply to maintain a kidney in its normal position. Indeed, I am in the habit of prescribing a well-fitting and rather tight corset for women with movable kidneys, provided no contra-indication to the corset is found in the condition of the genital organs. In the few cases in which I have met movable kidneys in men, I have advised the wearing of a tight elastic abdominal supporter, the main compression being made about the waist.

Laxity of the abdominal parietes, the result mainly of childbearing, has been regarded by many as a causative agent of movable kidney. This hypothesis, however, will not bear close scrutiny. It loses its value when we consider that as many, if not more, movable kidneys are found in virgins and nulliparæ as in multiparæ. The statistics of Lindner show this, and my own experience bears him out. That, however, laxity of the abdominal walls bears a certain, though small, share in the etiology of the affection, I am not prepared to deny.

The theory of a congenital anomaly or predisposition to the disease is one difficult to either prove or disprove. For the present it is a mere conjecture as far as concerns *movable* kidney; a *floating* kidney may depend upon a congenital mesonephron.

The theory which upon critical and judicial review of the cases under my observation seemed most satisfactorily to account for the development of the condition in a majority of instances, is that of absorption or atrophy of the peri-renal fat. It has been quite a common experience with me to note the beginning of symptoms due to movable kidney immediately after recovery from one of the wasting diseases, or on the occurrence of a noticeable loss of weight from any cause. My own clinical observation, therefore, would seem to indicate that loss of peri-renal fat is the chief etiological factor in the production of movable kidney, though I am inclined to believe that other causative agencies may play a part, less important and frequent though it be, in the development of the disorder. It is quite easy, for instance, to understand how excessive and prolonged vomiting might occasionally loosen a kidney, as in a case reported by Dr. C. O. Baker (*N. Y. Medical Record*, May 14, 1892). The patient, himself a physician, first noticed the development of a movable tumor (kidney) in the right hypochondrium after a voyage in which he suffered much from incessant sea-sickness. Even in this case, however, rather clearly as the evidence points to vomiting as the cause, it may be questioned whether the movable kidney was not a result of the wasting of fat, including the peri-renal, due to the prolonged inanition.

A movable kidney may rarely develop quite suddenly, as in the case just mentioned, or the condition may be of more or less rapid growth. While the majority of movable kidneys undoubtedly require months, and even years, to develop, I have several times been in a position to observe the development of a mobility of six to eight centimetres in a kidney which, from personal examination, I knew to be in its proper place two or three months previously. One or two such instances are narrated in the appended histories.

For practical purposes a distinction should be made between movable and floating kidney, although the latter condition probably represents, in some instances at least, but the final stage of development of the former. A movable kidney, as I interpret it, is one movable within a pouch or hollow formed within its own fatty capsule; while a floating kidney is one supplied with a mesonephron, the length of which determines the extent of its mobility. The floating kidney has normal relations with its fatty capsule, or at least that portion of the latter which it carries with it in its excursions. The movable kidney, for reasons which will appear further on, produces more distressing symptoms than the floating kidney, although the latter has by far the greater range of mobility. The movable kidney is by far more frequent than the floating kidney. I have met at least fifty movable kidneys to every one floating kidney, and it is with the movable kidney alone that this paper has to deal.

Litten makes a further distinction between movable and wandering kidneys on the one hand and a dislocated kidney on the other hand. By the latter term I presume he means a displaced kidney fixed in its abnormal situation. I have met the latter condition but twice, the right kidney in each instance being fixed alongside the spinal column some eight centimetres below its normal position, and being insusceptible of reduction. A characteristic of the movable kidney is the facility with which it can be brought back to its normal situation.

Litten still further refines between a congenital wandering kidney (floating kidney?) and an acquired movable kidney. As used by the Germans, the term *Wanderniere* (wandering kidney) embraces both movable and floating kidneys. For reasons already stated, however, I prefer to maintain the distinction between the two.

The path of dislocation of a movable kidney varies. In a proportion of cases, estimated at 75 per cent. by Lindner, it becomes displaced outward and then forward and inward along the course of the lower ribs until it reaches the region of the anterior superior iliac spine. In the remaining cases it moves directly inward and downward. Whatever may have been the original path of dislocation, the result, as far as the final position of the movable kidney is concerned, will be the same as soon as the organ has attained a range of mobility of ten to twelve centimetres. When this range of mobility has been attained, the kidney can be readily moved about anywhere within the segment of a circle whose centre is at the normal situation of the kidney, whose radius measures ten to twelve centimetres, and whose arc extends from the vicinity of the anterior superior spine of the ilium to the under surface of the liver.

The subject of movable kidney is of paramount importance to the gynecologist, because of its preponderating frequency in women as compared with men, and because its symptoms are so similar in many respects to those accompanying various lesions of the genital sphere.

Perhaps, however, the comparative frequency of its occurrence in the sexes is not as great as usually supposed. Abdominal palpation is practised much more frequently upon the female than upon the male, and the gynecologist, with tactile sense sharpened by daily practice in bimanual examination, is much more likely to discover minor degrees of the lesion than is the general practitioner. And it is just these minor degrees that are the unrecognized cause of so much suffering and distress.

My practice being exclusively gynecological, I am scarcely in a position to estimate from personal observation the frequency of the occurrence of movable kidney in the male. I have seen but two cases in men, both of them during the past year. Both were personal friends, who, in speaking of their health, casually mentioned a combination of symptoms, such as is usually found associated with movable kidney. In both, upon examination, I found the right kidney movable to the extent of about ten centimetres.

Movable kidney, in women at least, occurs on the right side in the overwhelming majority of cases. I have seen the condition but four times on the left side, in three of the patients the right kidney being movable at the same time and to a greater degree than the left. In the fourth patient (Case I.) the left kidney became movable six months after fixation, by nephrorrhaphy, of a movable right kidney. Why the right kidney should so much more frequently become movable than the left I can only surmise. Perhaps it is more exposed to displacing influences on account of its situation immediately beneath the liver, a heavy organ, subject to great fluctuations in size and weight.

SYMPTOMS.—As already stated, many of the symptoms of movable kidney are common also to many diseases of the sexual organs in women. The symptoms of the earlier and of the later stages of movable kidney differ considerably from each other, those of the earlier stages being by far the more distressing. The suffering, according to my observations, seems to be greater with a kidney movable from four to ten centimetres; after the latter limit of mobility has been exceeded the symptoms generally abate in intensity and some of them disappear altogether. Quite enough morbid manifestations, however, remain to make the patient more or less a chronic invalid. It is but just to state, however, that this observation of the greater severity of the symptoms in the earlier stages of movable kidney, as compared with the later, does not harmonize with the experience of Lindner and others, who claim that the greater the degree of mobility the more severe and numerous the symptoms.

I will first describe what I consider to be the most prominent and characteristic combination of symptoms, as I have found it, in *uncomplicated* cases of movable right kidney, in which the mobility ranges from ten centimetres downward; enumerating subsequently the other symptoms more or less frequently observed. *The morbid phenomena due to a movable right kidney in its earlier stages are: digestive disturbances, chronic in character; general nervousness; epigastric pain, usually located somewhat to the left of the median line, at or near the free border of the left costal cartilages; cardiac palpitation; inability to feel comfortable or to sleep when lying on the left side.* These symptoms, or as many of them as may be present in the particular case, are all more or less constant and chronic in character. When disease of the genital apparatus is associated with movable right kidney, the symptoms immediately become more manifold, and it requires close clinical study to differentiate between the manifestations belonging to the renal and the genital abnormality, especially as a movable kidney exceptionally produces symptoms such as dysmenorrhœa and atypical uterine hemorrhages which generally point to lesions of the genital tract. I will, therefore, dwell somewhat upon the symptoms above enumerated as usually accompanying movable kidney, before enumerating the other morbid manifestations more or less frequently observed.

The digestive symptoms usually observed are, in their order of frequency: anorexia; gaseous eructations; epigastric pain and distress, most severe from half an hour to three hours after meals; constipation; occasional vomiting; foul breath. Quite a number of patients suffering from movable kidney have been treated for years by the ablest practitioners for gastro-intestinal or intestinal catarrh before coming under my observation, and it is one of the most gratifying experiences to see how rapidly and completely these symptoms usually vanish after fixation of the movable kidney by a bandage or by nephrorrhaphy.

General nervousness, of greater or less degree, but always decided, is the next most frequent concomitant of movable kidney. There is nothing peculiar about this nervousness to distinguish it from that due to other causes. It disappears to a marked extent, though not as rapidly or completely as the digestive symptoms, after fixation of the kidney.

The epigastric pain associated with movable kidney is quite constant in its location, being generally referred to a point some five to six centimetres to the *left* of the median line, at or near the free border of the left costal cartilages. The nature and source of this pain are not quite clear. It is not markedly increased by pressure, and in this respect differs from an ordinary intercostal neuralgia. It appears to be independent of the digestive processes, occurring at any time, irrespective of the fulness or otherwise of the stomach. Landau calls it a cardialgia, and, for reasons to be explained later, I am of the opinion that this term is probably correct, albeit the pain is somewhat lower than that of cardialgia from other causes. This pain also disappears promptly after the malposition of the kidney is rectified.

Cardiac palpitation is one of the most annoying and persistent symptoms. In some patients it is almost constant, and occasionally they become so habituated to it that they are unaware that their heart is beating rapidly, although the examiner may find the pulse 120 or more. This symptom, like the general nervousness, yields more slowly than the other symptoms after fixation of the kidney.

The last of the principal symptoms is inability to rest with comfort or to go to sleep lying on the left side. That this symptom is not by any means imaginary is attested by the frequency with which patients complain of it before they are informed that they have a movable kidney, and by its prompt and complete disappearance after fixation of the kidney.

Among the other symptoms which, compared with the above, occur with comparative rarity in uncomplicated cases of movable kidney, I will merely mention the following: Vertigo; a dull backache; painful menstruation; increase of the menstrual flow; pain in region of displaced kidney; mild urinary symptoms, such as intermittent hydronephrosis, moderate polyuria, slight frequency of micturition; icterus; anæmia due to interference with the digestive functions. It is unnecessary to dilate upon these symptoms; they are quite secondary in importance to the five symptoms above described.

It is quite curious and interesting to observe the influence of menstruation and pregnancy upon the symptoms of movable kidney, these being always intensified during menstruation and during the early months of pregnancy, while they completely disappear during the latter half of utero-gestation. The explanation is probably this: During menstruation and the early months of pregnancy the increased collateral flow of blood to the abdominal organs produces hyperæmia and increased weight of the displaced kidney, with intensification of the symptoms. During the latter half of pregnancy the uterine tumor pushes the kidney upward and supports it in its proper place in a better manner than can be done by any abdominal supporter. It has been an oft-repeated experience with me to have patients state that the only times at which they have felt well during many years past, ever since the beginning of their illness, was during the latter half of their pregnancies, whatever the number of the latter may have been. I have also noted in one case the appearance of symptoms of movable kidney immediately following the removal of a large ovarian cystoma. The cyst had, until removed, sustained the movable kidneys in their place, and thus kept the symptoms in abeyance.

Authors are not as yet agreed upon the mode of causation of the symptoms due to movable kidney. The majority of those who have expressed themselves upon this subject are of opinion that obliteration of the lumen of the duodenum by the displaced kidney leads to retention of the contents of the stomach, and, as a result of this, secondarily to the production of the other symptoms above narrated. They differ somewhat in their views as to how this duodenal obstruction is brought about. Lindner, for instance, believes that the descending kidney obliterates the lumen of the duodenum by traction, claiming to have substantiated this view by experiments on the cadaver. Bartels, on the contrary, holds that the middle or descending portion of the duodenum is closed by direct pressure upon it of the displaced kidney.

With all due respect to these high authorities and those who agree with them, I am of opinion that mechanical occlusion of the duodenum is insufficient to account for the symptoms of movable kidney, even if the hypothesis of a mechanical occlusion of the duodenum occurring as a sequence of movable kidney could be proven true, which, as far as I know, has not hitherto been the case. I think the explanation of the symptoms must be sought in other directions, and personally am inclined to look for it in disturbances of the abdominal sympathetic system, more especially of the solar plexus with its branches distributed to the abdominal and thoracic viscera. After reading the extract from Gray's *Anatomy*, which I shall presently quote, it does not seem to me difficult to understand how a movable kidney, by pressure and traction, by stretching and irritation of various parts of the important sympathetic centre called the solar plexus, and of its branches, is quite capable of producing all the various sensations and functional disturbances noted under the head of symptoms. While all cases, to my mind, become explicable by this theory, the hypothesis of duodenal obstruction fails entirely to explain why the same series of phenomena occurs when either the right or the left kidney, or both, become movable. It may be claimed, and with justice, that the left kidney is rarely, if ever, movable alone, and that in this case the movable right kidney produces the symptoms. But Case I., narrated below—the careful perusal of which I would urge in this connection—has the value of a crucial experiment in determining this question, and to me was proof positive that a movable left kidney, the right being securely anchored in its place, is capable of producing exactly the same symptoms as a movable right kidney. Indeed, it was the observation of the progress of this case that led me to abandon the view of duodenal obstruction which I had previously held, and to seek another explanation of the causation of the symptoms of movable kidney. The following quotation is from Gray's *Anatomy*. (The italics are mine.)

"The epigastric or solar plexus supplies all the viscera of the abdominal cavity. It consists of a dense network of nerves and ganglia, situated behind the stomach and in front of the aorta *and crura of the* *diaphragm.* It surrounds the cœliac axis and root of the superior mesenteric artery, extending downward as low as the pancreas and *outward to the supra-renal capsules.* This plexus, and the ganglia connected with it, receive the great splanchnic nerve of both sides, part of the lesser splanchnic nerves, *and the termination of the right pneumogastric.* It distributes filaments, which accompany, under the name of plexuses, all the branches from the front of the abdominal aorta."

This part of the subject would be incomplete without an allusion to the so-called "strangulated movable kidney," as described by Landau and later by Lindner, a typical illustration of which condition I have seen in but two instances. The symptoms then become acute; pain in the right side, vomiting, great restlessness, possibly a little febrile movement, occur; the urine is diminished in quantity. This condition lasts from two to four days, when, with increased secretion of urine, the symptoms rapidly disappear. Landau thinks an obstruction of the renal vein by torsion accounts for the strangulation, while Lindner regards the symptoms as due to temporary obstruction of the ureter, by torsion or kinking, thus producing hydronephrosis.

DIAGNOSIS.—A movable kidney is, in my opinion, the easiest of all intra-abdominal conditions to diagnosticate. The diagnosis is made by the discovery of a movable tumor, of the size, shape, and consistence of the kidney, in the right hypochondriac or lumbar regions, or in the iliac fossa; in fact, by feeling a movable kidney in any other but its normal position. The recognition of a movable kidney is an easy matter, especially for the expert gynecologist whose tactile sense is educated by daily practice. With the patient in the dorsal position, and the thighs flexed to relax the abdominal parietes, the examiner sits at her right side, opposite the loins, and with his left hand passed under the small of her back, presses deeply into the renal region to either crowd the kidney out of its place, or to keep it from slipping unrecognized into its normal position while the examination is being made. The fingers of the right hand palpating the front and side of the abdomen usually recognize the displaced organ without difficulty. When it is detected it should be caught between the fingers of both hands and gently pressed until it escapes alternately upward and downward from between the compressing fingers. The contour of the upper and lower poles and the entire characteristic kidney shape of the tumor are thus recognized without the possibility of mistake.. The majority of movable kidneys when thus moderately pressed and handled are not sensitive to pressure; in a minority of cases the patient complains of slight, quite bearable pain. Landau has found that pressure upon a movable kidney causes cardialgia. I have never elicited this symptom, but have often produced a slight nausea on compression of the displaced organ. Perhaps the difference in the sensations of the patient may be due to varying degrees of pressure employed. The displaced kidney is almost uniformly of about normal size; in but five or six instances have I found it enlarged.

Should there be difficulty in palpating the kidney in the dorsal position, the left lateral decubitus (Sims's position), as recommended by Lindner, may be tried. I have myself never resorted to it. When I have failed, with the patient in the dorsal position, to dislodge a suspected movable kidney from its normal situation by pressure of the left hand applied to the back, I have always succeeded by directing the patient to sit upon the edge of a chair with the body inclined forward and the hands resting upon the knees. In this position I have never experienced difficulty in reaching a diagnosis. By employing this position, or the left lateral decubitus, the necessity of repeated examinations in doubtful cases, insisted upon by many authors, can be avoided.

Very rarely, indeed, should there be difficulty in distinguishing a movable kidney from other tumors of the abdomen, and reference to this part of the subject would scarcely be necessary were it not that errors have been made by the ablest diagnosticians. Thus in the case of Dr. Angus Mac——, already alluded to as reported by Dr. Baker, the patient acquired a movable tumor in the right hypochondrium as a result of prolonged vomiting from sea-sickness. Several clinicians of the highest reputation examined the tumor, and at least two of them pronounced it a movable kidney. The patient finally consulted Lawson Tait, who, ignoring previous opinions, made a diagnosis of distended gall-bladder and performed abdominal section. At the operation (presumably performed in the dorsal position), Tait found the gall-bladder and adjacent structures healthy and the "kidney *in situ*." He afterward said that the tumor was an hysterical tumor. Nephrorrhaphy was subsequently performed by Dr. Baker and the patient relieved of his long suffering.

It will thus be seen that a movable kidney may be mistaken for a distended gall-bladder. Attention to the shape and outlines of the tumor and to the range and direction of mobility should enable us to avoid this error.

The so-called "phantom or hysterical tumor" should never be mistaken for a movable kidney. If the hysterical tumor be due to intestinal distention, percussion will enable us to differentiate. If, as I believe is more frequently the case, the phantom tumor represents a localized spasmodic contraction of the abdominal muscles—most frequently of the recti—the expert fingers of the gynecologist should have no difficulty in detecting the condition. In very exceptional cases examination in narcosis would remove all doubt. I have myself never met with a case in which it was necessary.

A *movable* right kidney should never be mistaken for carcinoma of the stomach or adjacent viscera, although the symptoms in many cases of movable kidney are similar in many respects to those of malignant disease of the abdominal viscera. A right kidney dislocated downward and *fixed* in its abnormal position—a rare condition, fortunately—may offer difficulties of diagnosis.

The error of confounding the symptoms of a movable kidney and those of a chronic intestinal or gastro-intestinal catarrh can only occur from failure to make a sufficiently painstaking examination, and is inexcusable at the present day.

PROGNOSIS.—A kidney once movable never again becomes *firmly* fastened in its *normal* position, except by operative interference. Its mobility, however, may be diminished by increased deposit of fat around the organ accompanying general improvement in nutrition. The intensity of the symptoms, whatever the latter be, remains about the same until the kidney attains a range of mobility of ten to twelve centimetres. After this range has been attained, and during the further increase in mobility, the symptoms are somewhat mitigated. The patient, however, as already stated, remains more or less a chronic invalid. A movable kidney may, however, become fixed in an *abnormal* position—rarely, I believe, by peritoneal adhesions, but rather by an induration or mild sclerosis of the fatty tissues surrounding it. A floating kidney, on the other hand, being contained in a fold of the peritoneum, may become fixed by agglutination of its peritoneal coat to neighboring peritoneal surfaces. When this occurs the symptoms are likely to become very distressing.

TREATMENT.—The dorsal decubitus will markedly mitigate or entirely remove, while it is maintained, the symptoms of movable kidney. It will, however, not lead to fixation of the kidney, no matter how long maintained, and the symptoms are certain to be reproduced on assuming the erect posture.

I know of one case, greatly benefited, though not cured, by the Weir Mitchell treatment of absolute rest in bed, forced feeding, massage, and electricity. The increased deposit of fat around the kidney probably explains the beneficial results, and the method may be tried in patients who can afford it, and who elect it after the alternatives have been fairly presented to them. Lasting relief can scarcely be expected, unless the obesity produced can be maintained or even increased. This amelioration of symptoms is, as already remarked, occasionally observed to follow improved nutrition without any special medication.

Eisenberg (*Wiener med. Presse*, 1891, No. 36) has reported successful results in the treatment of movable kidney by massage after Brandt's method. Further experience in this direction is needed before we can arrive at definite conclusions.

Abdominal supporters or bandages are relied upon by the majority of those who recognize in movable kidney a pathological condition requiring treatment. In our resources against the condition it ranks second to nephrorrhaphy; but in my opinion it is a poor second. It will always appeal strongly to minds with anti-surgical bias, and I confess that until I saw my way clear to a more efficient and perfected nephrorrhaphy, with more uniform and lasting results than existing reports supplied, I preferred to relieve my patients as best I could with bandages. Even after I had gained some confidence in my ability to fix a movable kidney by nephrorrhaphy, I still advised the trial of a bandage to obtain relief before resorting to operative measures. Faithfully as I tried bandages, however, I must own that I accomplished little good with them. This might *à priori* be expected, as a movable kidney in the readiest manner escapes from beneath even the compressing hand, probably the most perfect pad as yet devised. Inability to obtain desirable results from the use of the bandage, and the almost absolute certainty of relief by nephrorrhaphy in cases selected after careful study as indicating fixation of the kidney, have led me latterly to urge nephrorrhaphy as the first resort to patients with movable kidneys producing decided symptoms.

A bandage, to be effective in retaining a movable kidney must support all the abdominal viscera and, through them, the displaced organ. The special compress or pad so generally used beneath the bandage over the front of the renal region is a delusion and a snare, the kidney escaping from beneath it with the greatest facility. It is scarcely consistent for one avowing a disbelief in the efficacy of bandages to follow such avowal by an expression of predilection for certain forms of bandages. Whatever little good, however, I have accomplished in this direction has been by a simple bandage of elastic webbing entirely encircling the whole abdomen and making as much compression as the patient can comfortably bear. A well-fitting, rather tight corset answers still better in males, and in women in whom no contra-indication to the wearing of a corset exists on the part of the sexual organs—a condition obtaining only in a minority of the cases I have seen.

Nephrectomy, or removal of the movable kidney, I mention only to condemn. It has no justification in this condition, while nephrorrhaphy, a much less dangerous and mutilating operation, can be made to yield results almost, if not quite, as good and positive.

Lindner, in 1887, collected 36 nephrectomies for wandering kidney, with 9 deaths, a mortality of 25 per cent. Of these 36 kidneys, 9 were removed by the lumbar incision without a death, whereas 25 were extirpated by cœliotomy with 9 deaths. In 2 cases the method of operation is not stated. This appalling mortality, I am inclined to believe, would be lessened by the addition of more recent cases.

Lindner also collected 29 nephrorrhaphies with 1 death. Adding thereto my own 12 cases with 1 death, makes 41 cases with 2 deaths, a mortality of less than 5 per cent. This mortality rate would also, no doubt, be lessened by the addition of all published cases, of which I can recall quite a number, without remembering having read of an additional death.

(To be continued.)

A QUESTION OF WATER, ETHICS, AND BACTERIA.

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With our daily growing knowledge of the etiology of disease, and the discovery of the fact that the water which we daily use in our homes and houses is the most widely diffused and general bacterial culture-fluid, the feeling of responsibility connected with water diagnosis steadily increases. After an experience of twenty years, during which I have reported upon somewhat more than two thousand samples sent from a large proportion of our public supplies, and representing the most diverse kinds of water, I feel a more painful sense of this responsibility, and am at times more embarrassed in arriving at a decision than when I made my first analysis and report. This was upon the waters used by Jersey City, Newark, and Hoboken some twenty years ago.

An interesting experience of this nature has recently befallen me. It involves not only a question of ethics and moral obligations, but also certain doubts as to the practical value of bacteriology in deciding upon the wholesomeness and purity of a water employed for domestic use.

A sample of water was sent by a well-known engineer which had been taken from the well of one of his clients, whose house stands in perhaps the most beautiful of the residence-parks of suburban New York. It had so happened that the water of another well, located in the same park, had been sent just previously, and though affording better analytical data, had been condemned as dangerous and impure. But the water of the particular well I now refer to, for reasons given below, was pronounced safe and wholesome. To put the matter in clearer light, I shall run the risk of making my article somewhat formidable with technical terms and with figures, and shall give in detail the relative composition in parts per 100,000 of the two well-waters:

	Condemned water.	Approved water.
Color	Same	Same
Taste	Pleasant	Sparkling
Smell	None	None
Ammonia	0.006	0.0045
Albuminoid ammonia	0.008	0.0115
Oxidizing oxygen	0.071	0.20